

St. Louis - General Offices

February 14, 1962

**THERMOFLUID FR HEAT
TRANSFER FLUIDS**

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THERMOFLUID FR File

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Confirming our conversation February 12, this memo makes several specific requests in line with the THERMOFLUID FR program and offers suggested target dates.

We are very encouraged with the data starting to come from the test loop. As you know, delays were encountered and complete data will apparently be delayed until May. We intend to delay our marketing program if necessary to gain the benefit of the complete data coming from Research. The target dates listed here are based on the present status of the test loop work.

Suggested Target Dates

- | | |
|---|---------|
| 1. Measure specific heat of AROCLOR 1242 and AROCLOR 1254 | 4/1/62 |
| 2. Measure thermal conductivity of AROCLOR 1242 and AROCLOR 1254. | 4/1/62 |
| 3. Determine the variations of specific heat and thermal conductivity in AROCLOR 1242, AROCLOR 1248 and AROCLOR 1254 so that a specification range or specification minimum can be established without the need of analyzing each production lot. | 4/15/62 |
| 4. Determine a maximum viscosity of AROCLOR 1242, 1248 and 1254 at 450° to 600°F. and establish a specification range or specification maximum. | |

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Suggested Target Dates

5. Determine a low temperature fluidity specification on AROCLOR 1242, AROCLOR 1248 and AROCLOR 1254 as either a viscosity maximum of 4000 SUS at an appropriate temperature or by establishing a pour point maximum
6. Develop calibrate and have built a vapor pressure and thermal stability control analysis device. Establish a specification range or maximum on vapor pressure at an elevated temperature and a decomposition rate at about 800°F. (alternate: minimum temperature for a given decomposition rate)

4/15/62

Dr. Koerner's suggested equipment appears to be a good approach to this laboratory equipment and it could be used to measure vapor pressure and thermal stability of other products sold as heat transfer fluids or sold for other applications on the basis of their thermal stabilities. If feasible, equipment should be provided for both the Krummrich and the Anniston plant laboratories.

4/15/62

7. Elimination of costly safety devices when using these chlorinated biphenyls heat transfer fluids is based on the fact that they have no fire point. Accordingly, a Cleveland open-cup fire point measurement should be part of the specifications for these three fluids. If a general Monsanto analytical procedure is not suitable to this measurement, then appropriate modifications should be determined and specified.

4/15/62

If any of these requirements do not coincide with my verbal request or, are not feasible, please let me know; otherwise, we will assume you are proceeding with them.

This over-all project has been justified and approved. You will remember that justification for the work on AROCLOR alone centers around its being sold at a premium price as a heat transfer fluid, rather than a multipurpose chemical. New profits, in addition to existing profit levels, will be \$70,000 per year at the present level of sales and \$300,000 per year at the forecasted level for five years from now.

Richard Davis

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